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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/641,417	08/16/2000	Noel Morel	33428-PCT-USA-A	4877

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EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 11/29/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/641,417

Applicant(s)

MOREL, NOEL

Examiner

Justin R Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 rejected under 35 U.S.C. 103(a) as being unpatentable over Willard, Jr. (US 5,511,599). Willard, Jr. describes the manufacture of pneumatic, run-flat tires having a general tire construction, including a carcass reinforcement anchored within each bead to a bead wire and a crown reinforcement and tread joined to two beads by means of two sidewalls. Furthermore, the reference depicts (Figure 2) a circular junction between the tread mix and the sidewall. However, Willard, Jr. is silent with respect to describing the positioning of the junction radius on the axial outer wall and thus necessary fails to establish the quantitative relationships outlined by the claimed invention. Though it is unclear if the referenced drawings are "working drawings", they can be used to obtain "gross relative dimensions" and additional information that communicates the general structure of a given embodiment. As such, Figure 2 of Willard, Jr. depicts a tire construction in accordance to the limitations of the claimed invention. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to construct a tire having the claimed characteristics at a tread/sidewall junction in view of Willard, Jr., as set forth below.

As best illustrated by Figure 2, Willard, Jr. depicts a pneumatic, run-flat tire having a tread mix that is laid over the upper edges of the sidewall mixes. Though Willard, Jr. is silent with respect to several dimensions outlined by the claimed invention, the reference can be used to obtain "gross relative dimensions", even though the referenced drawings are not designated "working drawings". Furthermore, it does appear that the drawings have been drawn to identify the relative ratios between various tire components (figure has several reference lines establishing distances with respect to axis of rotation and equatorial plane). Thus, the following "gross relative dimensions" have been used to calculate the upper and lower range values defined by the claimed invention:

R_S (blue line): $5 \frac{11}{16}$ "

R_B (red line): $1 \frac{1}{2}$ "

R_{SS} (yellow line): $5 \frac{3}{16}$ "

R_C (green line): 5"

These quantities, in turn, suggest the following upper and lower values (measured in inches) for the two ranges established by the claimed invention:

$$5.27 < R_C < 4.85$$

$$5.19 < R_C < 4.82$$

As such, it is clearly evident that the radius of the circular junction ($R_C = 5$) obtained by using "gross relative dimensions" falls almost directly in the middle of both ranges. Therefore, one of ordinary skill in the art at the time of the invention would have viewed the tire structure depicted by Willard, Jr. as having dimensions and specifications in accordance to the limitations of the claimed invention.

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3. Claim 1 rejected under 35 U.S.C. 103(a) as being unpatentable over Kita et al. (US 4,527,606). Kita et al. describe the manufacture of pneumatic, radial tires for passenger cars having a general tire construction, including a carcass reinforcement anchored within each bead to a bead wire and a crown reinforcement and tread joined to two beads by means of two sidewalls. Furthermore, the reference depicts (Figure 1) a circular junction between the tread mix and the sidewall. Additionally, Figure 1 of Kita et al. provide several measurements with respect to the axis of rotation, including a measurement to the centerline of the carcass reinforcement and an approximate measurement to the junction point of the tread and sidewall (it appears that the junction of the tread and sidewall occurs at approximately p_G). However, the radius of the bead seat and the radius of the crown portion of the tire, as defined by the claimed invention, are not described by Kita et al. In any event, based on the measurements provided by Kita et al. and the general tire construction, one of ordinary skill in the art at the time of the invention would have readily appreciated and expected the tire design of Kita et al. to have dimensions in accordance to the limitations of the claimed invention, as set forth below.

As noted above, Figure 1 depicts a tire design having the following dimensions: $p_G = 281.7$ millimeters and $p_O = 284.5$ millimeters. As currently drafted, the claim is directed toward a junction radius falling within two ranges, one involving the radius of the crown portion (R_S) and the radius of the bead seat (R_B) and one involving the radius of the carcass centerline (R_{SS}) and the radius of the bead seat. In viewing Figure 1, it is evident that p_O corresponds to the radius of the carcass centerline and p_G

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approximately corresponds to the radius of the junction point. Though the reference does not describe the radius of the bead seat and the radius of the crown portion, it appears that the dimensions provided by Kita et al. suggest a tire design in accordance to the claimed invention regardless of the hypothetical bead seat radius and crown radius as long as they are within reason. For example, the first range requires a junction radius between the following values: $0.9R_S + 0.1R_B$ and $0.8R_S + 0.2R_B$. Though the crown radius is not described, one of ordinary skill in the art at the time of the invention would have readily appreciated and expected the crown radius to be roughly 15 millimeters beyond the carcass reinforcement, or approximately equal to 300^{0.2} millimeters. Thus, the aforementioned range is between $270 + 0.1R_B$ and $240 + 0.1R_B$. Therefore, in order for the tire of Kita et al. to fall within applicant's range, the radius of the bead seat would have to be between the broad range of 117 millimeters and 417 millimeters. It is quite obvious that the bead seat radius is going to be at least lower than ρ_M (236.1 millimeters), and most likely fall between 130 and 160 millimeters. The calculated range for the bead seat radius above is extremely broad and incorporates a large number of conventional values for the bead seat radius that one of ordinary skill in the art at the time of the invention would have readily appreciated and expected. Thus, even if a slightly different crown radius was realized, it is evident that the broad range for the bead seat radius would still have suggested to one of ordinary skill in the art at the time of the invention a tire in accordance to the dimensions of the claimed invention.

Regarding the second range outlined above, applicant requires that the junction radius fall between the following values: R_{SS} and $0.9R_{SS} + 0.1R_B$. As mentioned above,

R_{SS} (carcass reinforcement) is approximately equal to 284.5 millimeters, while the junction radius is approximately 281.7 millimeters. Thus, the aforementioned range is between 284.5 mm and $256.05 + 0.1R_B$. In order for the tire of Kita et al. to fall within applicant's range, the radius of the bead seat would have to be less than 256.5 millimeters. Though not disclosed by Kita et al., one of ordinary skill in the art at the time of the invention would have readily anticipated the bead seat radius to be less than 256.5 millimeters (p_M is 236.1 millimeters) and thus be in accordance to the dimensions of the claimed invention.

4. Claims 2 and 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Willard, Jr. as applied to claim 1 above, and further in view of Omokawa et al. (US 5,769,976). As described in the rejection of claim 1, Willard, Jr. is directed toward the manufacture of pneumatic, run-flat tires having a tread/sidewall junction as defined by the claimed invention. Furthermore, Willard, Jr. depicts the presence of at least one circumferential groove having a semicircular cross-section that is extremely close to the tread/sidewall junction point. However, the reference does not provide a quantitative relationship between the groove location and the junction point and is silent with respect to the depth of the groove with respect to the sidewall thickness. In any event, Figure 2 of Willard, Jr. depicts a circumferential groove location that is only slightly above the junction point, suggesting a small distance that one of ordinary skill in the art at the time of the invention would have anticipated to be less than 10 millimeters. Regarding the depth of the groove, Willard, Jr. does state that the total sidewall thickness is between 7 and 11% of the section width of the tire (Column 9, Lines 51-53), while Omokawa et al.

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suggest that similar circumferential grooves in the sidewall region have a depth that ranges between 1.0 and 3.0 millimeters (Column 1, Lines 59-63). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least one circumferential groove having a depth between 10 and 30% of the total sidewall thickness, as suggested by Omokawa et al., in the general tire construction outlined by Willard, Jr., as set forth below.

With respect to claims 2 and 3, Willard, Jr. depicts a pneumatic, run-flat tire having a juncture point design in accordance to the limitations of the claimed invention. Furthermore, Willard, Jr. illustrates the employment of at least one circumferential groove having a semicircular cross-section that is relatively close to the juncture point (green point in Figure 2). Though the reference is silent with respect to the exact location of the groove, the reference does suggest a small separation from the juncture point in the referenced figure. It is the examiner's position that one of ordinary skill in the art at the time of the invention would have viewed this reference as suggesting a separation that was less than 10 millimeters, as required by the claimed invention. In an analogous manner to the use of "gross relative dimension" above, the referenced drawings can be used to communicate the general structure of a given embodiment and as such, they suggest a separation within the 10-millimeter space required by the claimed invention. Therefore, Willard, Jr. teaches all the limitations of the claimed invention, including the groove location, with the exception of describing the groove depth.

As mentioned above, Omokawa et al. suggest a general range for similar circumferential grooves between 1.0 and 3.0 millimeters. The claimed invention, on the other hand, requires at least one circumferential groove having a depth between 10 and 30% of the total sidewall thickness. Willard, Jr., though, does suggest that the total sidewall thickness is between 7 and 11 % of the total section width; however, the reference does not have any embodiments suggesting possible section widths. In any event, both of the quantitative relationships provided above, in order to meet the limitations of the claimed invention, suggest a total sidewall thickness of the Willard, Jr. tire between 14.3 and 27.3 millimeters. This range would have been readily appreciated and expected by one of ordinary skill in the art at the time of the invention due to the suggestion by Willard, Jr. that each of the three reinforcing members in the sidewall region have a thickness that ranges between 3 and 6 millimeters, with the total sidewall thickness being the sum of the three reinforcing members and the axially outer sidewall rubber portion (Column 15, Lines 4-9).

Allowable Subject Matter

5. Claim 4 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. There was no reference in the prior art search that suggested the manufacture of tires having a general tire construction, including a carcass reinforcement anchored within each bead to a bead wire, a crown reinforcement, and a tread joined to two beads by means of a pair of sidewalls, such that a circular junction is created at the intersection of the tread and sidewall and a

groove is formed within 10 millimeters of said junction, characterized by a first concave arc and a second convex arc in accordance to the limitations of the claimed invention.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Musy (US 4,445,560), Maiocchi (US 3,818,964), and Brown, Jr. et al. (US 5,301,728). Musy teaches a tire design for airplane tires and provides several dimensions with respect to the axis of rotation. However, the reference does not clearly depict the junction of the sidewall and the tread, and thus necessarily fails to establish any quantitative ratios between the junction radius and the crown radius, carcass radius, and bead seat radius. Maiocchi, as best depicted in Figure 2, depicts a tire configuration having an approximate junction point and a circumferential groove in close proximity to said junction point. However, the reference does not define an axis of rotation and therefore, is silent with respect to several dimensions of the tire (carcass reinforcement, crown reinforcement, bead seat). Brown, Jr. et al., as best depicted in Figure 1, suggest a general tire design, and specifically measure the carcass reinforcement from the axis of rotation. However, the reference does not depict the junction of the tread and the sidewall and thus necessarily fails to establish any quantitative ratios between the junction radius and the crown radius, carcass radius, and bead seat radius.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is (703) **605-4397**. The examiner can normally be reached on M-F (7:30-4:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Justin Fischer

Justin Fischer

November 15, 2001

Jeff H. Aftergut
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